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## Description of the Dimensions Attitudes towards Science in Junior High School at Muaro Jambi

Astalini<sup>a\*</sup>, Darmaji<sup>b</sup>, Dwi Agus Kurniawan<sup>c</sup>, Alfika Destianti<sup>d</sup>

<sup>a,b,c,d</sup>Universitas Jambi, l. Lintas Jambi - Muara Bulian Km. 15, Mendalo Darat, Jambi Luar Kota, Kota Jambi,  
Jambi 36122, Indonesia

<sup>a</sup>Email: [astalinizakir@unja.ac.id](mailto:astalinizakir@unja.ac.id)

<sup>b</sup>Email: [dwiagus.k@unja.ac.id](mailto:dwiagus.k@unja.ac.id)

<sup>c</sup>Email: [Darmaji@unja.ac.id](mailto:Darmaji@unja.ac.id)

<sup>d</sup>Email: [alfikadestianti@gmail.com](mailto:alfikadestianti@gmail.com)

### Abstract

Tendency in perceptions negative or positive of students' attitudes toward science. Students are more likely to perceive negative perceptions. this research of purposive is knowing the students' attitudes toward science subject in the middle school Muaro Jambi. The research was qualitative with survey-type. Analysis data questionnaire using descriptive statistic while for interview using Miles and Huberman model. The research results of the student attitude indicator toward the science subject to science with a percentage of 43%, good enough for attitudes to the inquiry in scientist toward science with 48% percentage.

**Keywords:** Normality of scientist toward science; attitudes to the inquiry in scientist toward science; enjoyment of science lessons toward science; attitudes toward science.

### 1. Introduction

Indonesia's national education on the curriculum. Increasingly, curriculum-based results-based curriculum programs are subject to comparisons in international and national assessment studies. Reference [1]; argues that Indonesian education system, beside the fact that it has a single system with a single educational law, accommodate two different official curricula administered by two different ministries.

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\* Corresponding author.

Reference [2]; argues that the curriculum has two aspects, namely as a plan that must be used as a guideline for the implementation of the teaching and learning process, and as a tool to achieve educational goals. It is arguable to say that increasingly, curriculum programs focusing on outcome-based education are subject to comparison in both international and national assessment studies [3]. Reference [4]; teachers' decisions about how they will use curriculum materials can have both positive and negative effects on how their students experience reforms as well as what their students learn. It is arguable to say that one of the main objectives embraced for the curriculum science is to prepare students for science-related careers in, for example, industry, government, and health professions [5]. Reference [6]; hypothesize that high school PBS curricula may be uniquely suited, based on design, for the positive impact of science achievement and attitudes and eventually lectures on science and career plans of racially underrepresented ethnic and racial students in science careers. Reference [7]; although science supports itself upon a global accumulation of knowledge and has an inherent pretension of universality, in the social sciences, local references are extremely important, in a way that is not present in other scientific disciplines. Reference [8] science education is important in developing the character of the nation's children because of the consistency of the moral ethics content that students are relevant to the teachings of Kihajar Dewantoro's ancestors, namely "ing ngarso sung tulodho ing madya to develop the intention of tut wuri handayani". In addition, importance of scientific attitudes of science learning, especially students in junior high school are not only required to understand the concept of science but students are also equipped with the able to conducted experiments natural science to trigger understanding and insight students in understanding science learning. It makes an active student in learning, especially in science lesson. In addition to active students have a habit of positive attitudes toward science lessons. Reference [9] people express their attitudes and beliefs on a daily basis through their behavior and language. Student behavior during the study of science shows their attitude toward the science course itself, be it a positive attitude or a negative attitude. The attitude of the success a student determines the material absorbed the learning process. The success of students to absorb well the teaching materials delivered in the learning process by the teacher will lead to positive learning outcomes in the individual student's natural science. Conversely, non-success will lead to low learning outcomes in students of science. It is arguable to say that attitudes toward science is a form of regularity to behave toward natural science learning systematically and naturally of facts, concepts, principles, laws that are objectively tested [10]. They start liking or disliking natural science after school. To measure students' attitudes in need of natural science attribute indicators as follows: normality of scientist, attitude to scientific inquiry toward science and enjoyment of science lessons. Science is a learning that is so widespread, not only the teachers with students, but the students with objects around in nature. The relationship can be formed the process of learning in class. This process shows that science is discussion of how students can understand nature and the objects around it and then make it a learning that is able to link between students with learning that not only focuses on concepts but also on students' abilities. The scientific normality of scientists a student's view of scientists in of activity and ability possessed by scientists. It is arguable to say that nature and phenomena are undoubtedly the deciding factors, but scientists have the freedom and responsibility to act in accordance with good scientific practice to produce reliable scientific knowledge [11]. Reference [12] now a scientist is also a person who spirited high spirit in conducting experiments that exist on the developments of knowledge and technology from the past to the present. As scientists, they pay attention and engage in non-linearity, chaos, risk-taking, evolution over time, and the complexity of science and at both levels of scientific activity, theory and data, and their interactions.

Reference [13]; study conducted, In this study, we used a direct experimental approach in teaching some science topics, from grades 1 to 4 involving students, as a means to improve attitudes toward science learning, improve students' understanding and achievement, and their confidence to be inventors. Reference [14]; popular today as investigations are some things in science education . Investigations in science can help improve students' attitudes and skills in the investigation of the science. Reference [15] inquiry is a process for obtaining information by making observations, experiments and so forth to solve problems and obtain answers to the formulation and questions of the proposed problem. It is arguable to say that inquiry skills are modeled by the teacher. Reference [16]; the science chart on the observation and recording of data the students complete. Classroom teaching consists mostly of teacher-led presentations, videos, and group and group discussions in relation to observation. Natural science discoveries obtained will be able make students is attitudes toward investigation growing. The development of this is seen in [17]; that science scholars have recently been investigating historical sciences. Investigations in natural science are not only limited to scientific activities but also evolved use of experimental tools while conducting experiments on natural science. Natural science experiments in junior secondary schools usually investigate measurements of measuring instruments such as sliding, micrometer screw and so on. The investigation requires students to actively use practicum tools and make data analysis of the experiments or experiments they do. The natural science investigation can be done by discussing such a statement as discussion is linked to activity and direct observation designed to trigger student curiosity and science skills inquiry observation, data recording, data analysis, and conclusion. The results of these investigations will appear the desire to learn students, and with student learning can improve the able to think critically critical science subjects. It is arguable to say that nowadays students are expected to be individuals who question, wonder why, and research, recognize conflicts and contradictions, make good observations and make the right conclusions from these observations, think scientifically, criticize, produce, be aware the ways to acquire knowledge, creativity, decision-making, responsibility, self-expression, not memorizing information, but being aware of ways to achieve, use, share, and generate knowledge; in words, the process of science and critical thinking skills; and educational curriculum is prepared according to this [18]. Enjoyment of science lessons is an expression of feelings towards science subjects that have added value to students. seen when students attend teaching and learning activities attentively with students who during the lesson do not focus attention or do not like these subjects students tend to be passive and do not have positive feelings to participate in teaching and learning activities. Reference [19] it is arguable to say that example a student who likes to read, then he does not need to be told to reading, because mebaca not only as a fun activity, but also has become a necessity. The purpose of this study, describing the attitude toward science subjects, especially in junior high school Muaro Jambi. The questions in this study are addressed:

1. What is the attitude normality of scientist in junior high school to science subjects in Muaro Jambi?
2. What is the attitude to scientific inquiry toward science in the junior high school of Muaro Jambi toward science subjects?
3. What is the enjoyment of science lessons in the junior high school at Muaro Jambi?
4. What are the constraints faced by students and teachers in studying attitudes toward science in Muaro

Jambi Junior High School?

5. How to improve the attitude of junior high school students toward science in Muaro Jambi?

## **2. Method**

### **2.1 Research Design**

This research uses survey type. It is arguable to say that type survey cited that defines that survey research designs are procedures in quantitative research in which investigators administer a survey to a sample or to the entire population of people to describe the attitudes, opinions, behaviors, or characteristics of the population [20]. The purpose of survey research is to see and know the characteristics of the sample or population taken. The purpose of this study in accordance with the purpose of survey research is to determine the characteristics of student attitudes toward science subjects in Muaro Jambi.

### **2.2 Population and Sample/ Study Group/Participants**

The data sources of research use two sampling technique that is technique total sampling and purposive sampling. Total sampling is the entire population concurrently as the research sample. Total sampling was used when collecting questionnaire data with the total number of samples of 2815 students in Muaro Jambi which consist of 1255 male students and 1560 female students. It is arguable to say that in data sources while purposive sampling, researchers handpick the cases to be included in the sample on the basis of their judgment of their typicality [21]. Purposive sampling used for interviews with a total of 36 students consisting of two students for one school.

### **2.3 Data Collection Tools**

The instruments used in this study are questionnaires and interviews.. This attitude questionnaire measurement was performed using the Likert scale measurement. Likert scale rating category in this study is Strongly Agree (SS), Agree (S), Disagree (TS), Neutral (N), and Strongly Disagree (STS).

Reference [22]; that frequently, respondents do not want to express a clear positive or negative opinion and therefore like to cross the neutral middle. For positive statements (+) measurement starts from values 5, 4,3,2, and 1 on the Strongly Agree (SS) scale. As for the negative statement (-), the measurement starts from the value of 5,4,3,2,1 on the scale Strongly Disagree (STS).

Reference [23]; the type of interview used in this study is the type of unstructured or non-standard interview. Unstructured interviews are an open situation in contrast to standard closed or structured interviews. So it can be concluded that unstructured interviews are more open and flexible. Table 1. Positive and Negative Attitude Questionnaire Indicators.

**Table 1:** Positive and Negative Attitude Questionnaire Indicators

No	Variable	Indicator	Statement		Total Item
			Positive (+)	Negative (-)	
1	Attitudes toward science subjects	The Normality of Scientists toward Science	9, 30	2, 16, 23	5
		Attitudes to the Inquiry in Scientists toward Science	3, 17, 36, 46	10, 24, 31, 41, 50	9
		Enjoyment of Science Lessons toward Science	5, 19, 33, 43, 51	12, 26, 38, 47, 53	10

## 2.4 Data Collection

The data sources of research use two sampling technique that is technique total sampling and purposive sampling. Total sampling is the entire population concurrently as the research sample. Total sampling was used when collecting questionnaire data. It is arguable to say that in data sources while purposive sampling, researchers handpick the cases to be included in the sample on the basis of their judgment of their typicality (Cohen, Manion, & Morrison, 2005). Purposive sampling used for interviews.

## 2.5 Data Analysis

This research uses two data analysis. Analysis of student attitude questionnaire data on science subjects by using the descriptive statistic that calculates mean, mode, median and standard deviation. While for data analysis of student interview using Miles and Huberman model.

## 3. Results And Discussion

### 3.1 Normality of Scientists toward Science

The indicator normality of scientists is an analysis of the daily activities of scientists that is how students act like a scientist, or how a student experiments like a science scientist. From the results of descriptive statistical analysis indicators normality of scientists natural science can be seen in table 2.

**Table 2:** Descriptive Statistics Normality of Scientists toward Science in Junior High School of Muaro Jambi

Range	Attitude Classification	Total	Percent
7-10,6	Very not good	14	0%
10,7-14,2	Not good	310	11%
14,3-17,8	Enough	1206	43%
17,9-21,4	Good	1175	42%
21,5—25	Very Good	110	4%
Standard Deviation		2,38	
Mean		17,25	
Modus		17	
Median		17	
Min		7	
Max		25	

Based on table normality of scientists in the junior high school of Muaro Jambi, it is known that students are more likely to have the good attitude as many as 1045 students with score 21 and percent 37%. The students who have a very good attitude with the highest score of 25 as many as 413 students and 15% percent. The students who have enough or moderate attitude with a score of as many as 863 students and a percent of 31%. The students who have the bad attitude with the value of 13 as many as 384 students and the percent of 14%. While the students who have the lowest value is the value of 9 as many as 110 students and 4% percent is classified into a very bad attitude. Students tend to have a good attitude normality of scientists toward science because they think scientists care about their working conditions. As for students who tend to have less good attitude and attitude is not good because students feel bored and have less attitude like a scientist.

### 3.2 Attitudes to the Inquiry in Scientists toward Science

Attitude indicators for inquiry in natural science are student guides for using experimental tools and analyzing experimental data while experimenting. By experimenting, students are able to improve critical thinking skills in learning and also in terms of critiquing the results of experimental data analysis done with the support of experimental tools used. From the results of descriptive statistical analysis of attitude indicators on the investigation in the natural science can be seen in table 3.

Based on table 3 attitudes toward the investigation in science in the junior high school of Muaro Jambi is known that students are more likely to have the good attitude as much as 899 students with value 37,8 and percent 32%. The students who have the very good attitude with the highest score 45 as many as 402 students 14%. The

students who have enough or moderate attitude with a value of 30.6 as many as 847 students and a percent of 30%.

**Table 3:** Descriptive Statistics Attitudes Inquiry In Science In Muaro Jambi Junior High School

Range	Attitude Classification	Total	Percent
12-18,2	Very not good	11	0%
18,3-24,4	Not good	236	8%
24,5-30,6	Enough	1409	50%
30,7-36,8	Good	998	35%
36,9-43	Very Good	161	6%
	Standard Deviation	4,15	
	Mean	29,73	
	Modus	30	
	Median	30	
	Min	12	
	Max	43	

The students who have the bad attitude with the value of 23.4 as many as 484 students and the percent of 17%. While the students who have the lowest value is the value of 16.2 as many as 183 students and 6% percent is classified into the attitude is not very good. Students tend to have a good attitude on the attitude indicator of the inquiry in science because dominant students prefer to find out something by doing experiments rather than being told directly by the teacher. As for students who tend to have less good attitude and the bad attitude because students consider doing experiments not as good as information obtained from teachers and students prefer to follow friends rather than conduct their own experiments.

### 3.3 Enjoyment of Science Lessons toward Science

Enjoyment of Science Lessons toward Science is an expression of positive feelings about a situation that is done when studying science. From the results of descriptive statistical analysis of attitude indicators enjoyment of science lessons toward science can be seen in table 4.

Based on table 4 of descriptive statistics attitudes enjoyment of science lessons toward science in the junior high school of Muaro Jambi, it is known that students are more likely to have the good attitude as many as 1355 students with score 34,9 and percent 48%. The students who have a very good attitude with the highest score of 42,5 as many as 513 students and 18% percent. The students who have enough or moderate attitude with a score of as many as 787 students and a percent of 28%. The students who have the bad attitude with the value of 19,7 as many as 149 students and the percent of 5%. While the students who have the lowest value is the value of 12 as many as 11 students and 0% percent is classified into a very bad attitude. Students tend to have a good attitude enjoyment of science lessons toward science because they like study in science.

**Table 4:** Descriptive Statistics Attitudes Enjoyment of Science Lessons toward Science In Muaro Jambi Junior High School

Range	Attitude Classification	Total	Percent
12-19,6	Very not good	11	0%
19,7-27,2	Not good	151	5%
27,3-34,8	Enough	763	27%
34,9-42,4	Good	1393	49%
42,5-50	Very Good	498	18%
	Standard Deviation	5,84	
	Mean	37	
	Modus	39	
	Median	38	
	Min	12	
	Max	50	

The importance normality of scientist indicator toward science is to be more familiar with and understand about the life of science scientists both in terms of individual knowledge and ability possessed. It is arguable to say that freedom and Individual Control. It is arguable to say that at the same time, people highlight the collectivity, they also spread the freedom of individuals and their own contributions and responsibilities they want to share with the community as part of their A-identity scientists [12]. Furthermore, students' attitudes toward science subjects, especially on the normality of scientists toward science have various categories of students who have good attitude amounted to 1045 students with 37% more dominant percent. While students who have bad attitude amounted to 384 students with a percent of 14% and students are classified into a very bad attitude amounted to 110 with a percent of 4%. On the indicator of the normality of scientists toward science obtained a good attitude toward the indicator. This is because students know the life of scientists and the behavior of scientists. For example a scientist in studying science more trying and thinking scientifically in understanding objects or objects to be learned. Scientists always want to try new things in his life. Scientists are also always trying different experiments when the experiment failed to try again. It distinguishes between scientists and others. This kind of positive attitude that we should be able to take and be a guide in everyday life both in the school environment and society. The results of interviews obtained from questions about students' attitudes normality of scientists toward science are as follows: Question 1: Do you know the science of science? If so, how do you think the life of these science scientists? Answer: Yes, I know the science scientist. My opinion about the life of the scientists of science is so unique. Scientists sometimes like to be alone when they discover new discoveries afterward when they fail to try again, their curiosity is so great and the results obtained can become knowledge and teaching for others. Question 2: Do you have a desire for a career or a job in natural science midwife after you grow up? Answer: Yes, I want to line up in the field of science, especially a science teacher. The importance of indicators of attitudes against inquiry in science is to be able to improve students' attitudes in conducting various experiments in science and build scientific knowledge. Reference [17]; therefore, two different modes of scientific inquiry - experimental and historical - can be distinguished and need to be considered in teaching about how scientific knowledge is constructed. In addition, it is also necessary



knowledge of a scientist to improve students' critical thinking skills. It is arguable to say that however, cognitive scientists have several contributions to be made. They have developed some very general insights into how we think and how we learn, and this can be brought into critical thinking [24]. It is arguable to say that when students read about ideas relating to science, their progress, problems or problems must be able to build relationships between their knowledge of science and the content of the reading, so that they can understand the text and analyze it critically (while learning about science [25]. Reference [26]; combining aspects of High Order Skill in the teaching of science can improve critical thinking skills such as the statement in this context we argue that incorporating the High Order Skill aspect in the teaching of science can improve critical thinking skills if mediated by a pedagogical way of treating its neglected aspects, such an approach would challenge students to investigate the nature of knowledge: i) a critical reflection on the knowledge and experience gained in and out of class by stimulating, (ii) awareness of subjective and ideological bias and (iii) by developing the ability to analyze evidence promoting. Furthermore, students' attitudes toward science subjects, especially on indicators of attitudes toward inquiry in natural science have various categories. Students who have a very good attitude category amounted to 402 students with a percent of 14%. The students who have good attitude amounted to 899 students with a percent of 32%. The students who have enough or moderate attitude amounted to 847 students with a percent of 30%. As for students who have a bad attitude amounted to 484 students with a percent of 17%. While students who are classified into a very bad attitude amounted to 183 with a percent of 6%. In the attitude of the investigation on science subjects obtained good attitude toward the indicator. This is because in the learning process the learners are passionate in conducting experiments or experiments, and the teacher not only guides also as a facilitator in the science learning process in the classroom. The results of interviews obtained from questions about students' attitudes toward science subjects on indicators attitude enjoyment of science lessons toward science are as follows: Question: Do you liked doing experiments? Explain?

Answer: yes, I liked to do experiments because experimenting will increase my knowledge and curiosity, and one can improve my scientific attitude in learning science.

From the three indicators of attitudes toward the natural science, Subjects found constraints for the following three indicators: social implications of the Science Subject, the normality of scientists toward science and attitudes toward inquiry in the natural science. For constraints on the indicator first is the students who tend to have not good attitude and the bad attitude because students consider the subjects natural science difficult to understand. For constraints on indicator second is for students who tend to have less good attitude and the bad attitude because students feel bored and have less curiosity about physics scientists. For constraints on indicator third, students to have good attitude and the bad attitude because students consider doing experiments not as well as information obtained teachers and students prefer to follow friends rather than doing their own experiments. Based results of research on attitude toward science subjects in junior high school in Muaro Jambi using three indicators as follows: in the first indicator, normality of scientists toward science included into the enough good category. In the second indicator to students' attitudes toward investigations in the natural science included into the enough good category. And third indicator enjoyment of scientific inquiry toward science included into the goog category.

#### **4. Suggestion**

In this study, the findings in can contribute to the attitude of junior high school students to science subjects, especially in Muaro Jambi will be increasingly improved. And hopefully later with the increasing attitude of junior high school students to science subjects in Muaro Jambi can competed to make education better and can make an example for other schools in motivating education in Indonesia. The importance of teachers to knowed the attitude of students to science subjects is based on the attitude of accepting or reject in the learning process. It will be seen from the behavior and behavior of students when teachers explain the subject matter of science. To avoid this the teacher design the learning with creative and tailored to the condition of the students so that there is no acceptance done by the students to the science subjects. Design learning that should be made to make students learn, to learning students are able to think critically and teachers can also motivate students to increase the able to think critically about science subjects. The learning design that can improve students' critical thinking ability by experiment with connecting learning High Order Thinking Skill.

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